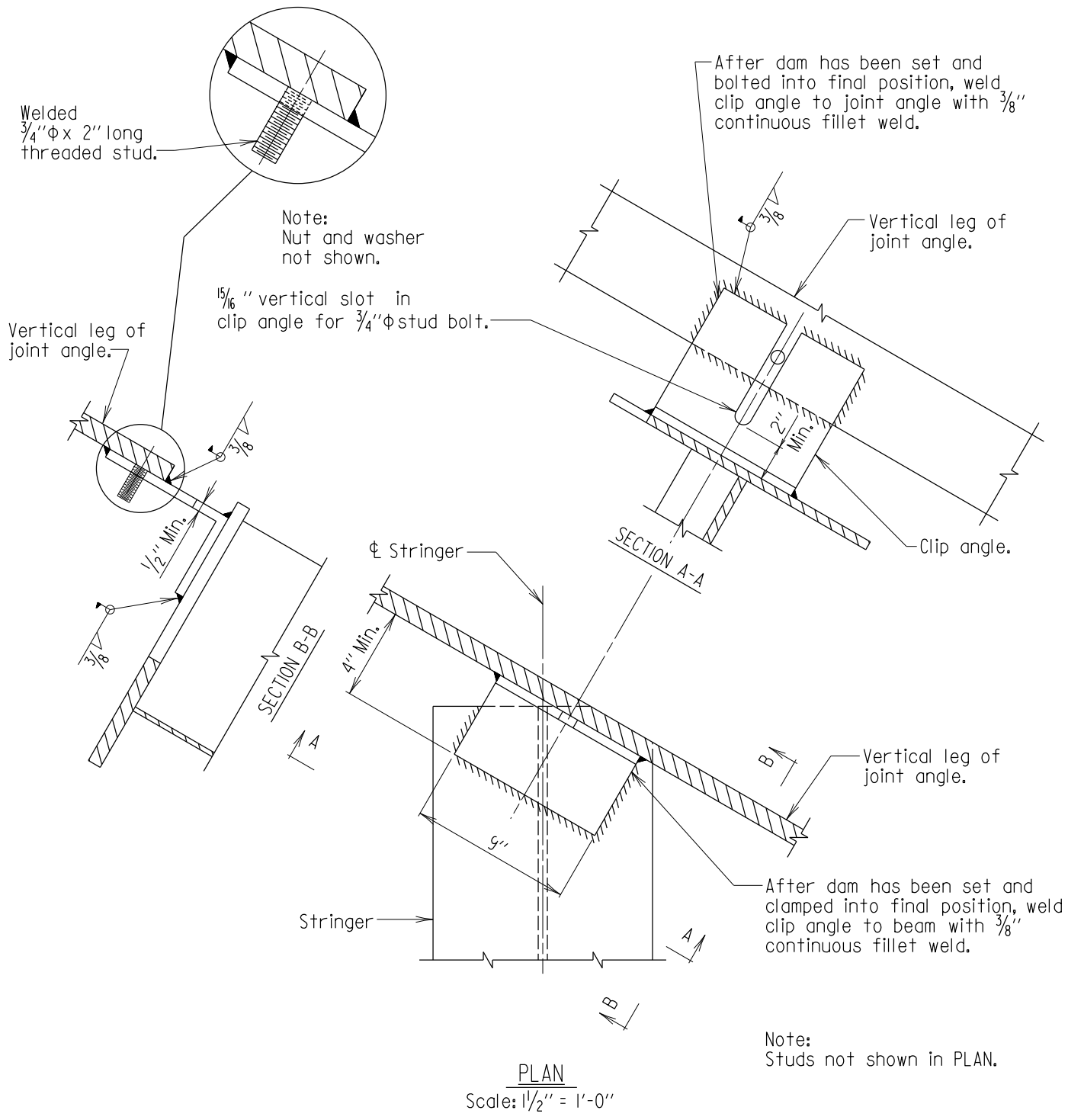


PLAN

Scale: 1 1/2" = 1'-0"

APPROVAL
E.S. Freedman DIRECTOR OFFICE OF STRUCTURES
DATE: 6/20/75

REVISIONS	
SHA	FHWA
3-27-89	6-8-90
2-23-93	·
2-17-94	·
3-20-01	·

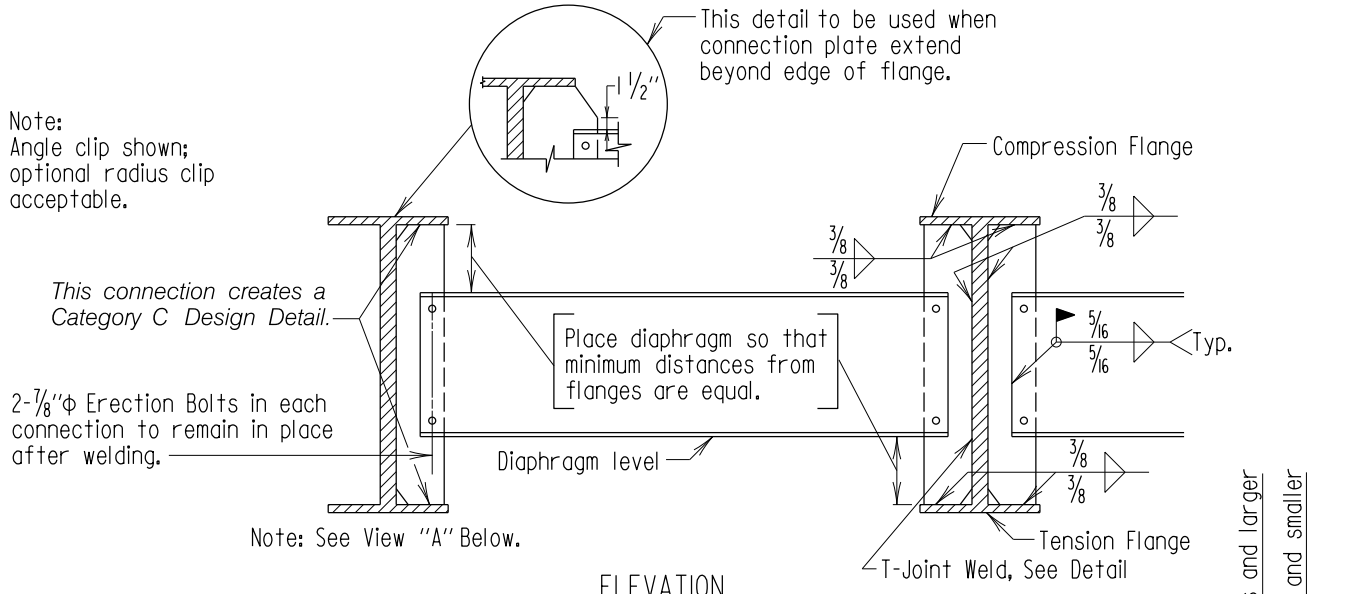
FHWA APPROVAL
DATE: 10-3-80

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

CLIP ANGLE DETAIL

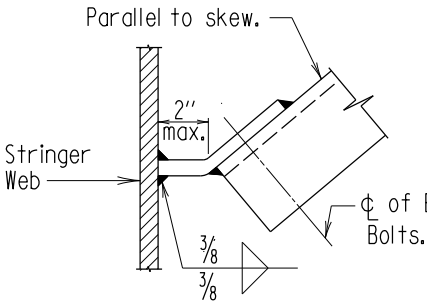
STANDARD NO. BR-SS(8.02)-75-4 SHEET 1 OF 1

SUPERSTRUCTURE-STEEL



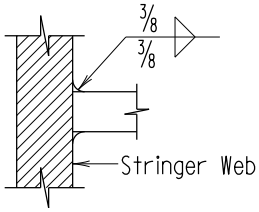
ELEVATION

Scale: None



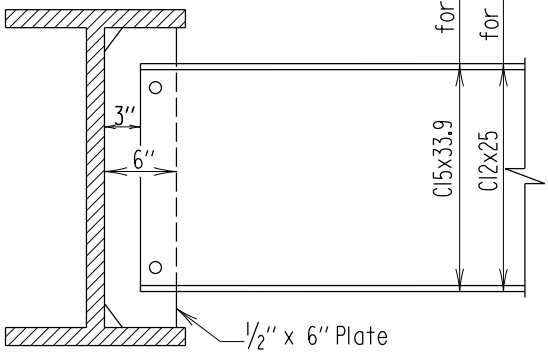
T-JOINT WELD DETAIL FOR SKEW ANGLE OVER 70° TO 90°

Scale: None



T-JOINT WELD DETAIL FOR SKEW ANGLE 70° OR LESS

Scale: None

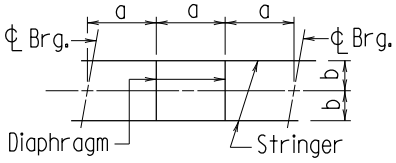


VIEW A

Scale: None

Notes:

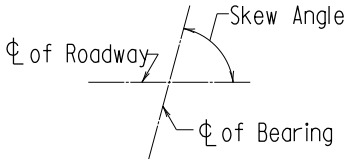
1. *Slant lettering indicates note "For Office Use Only"*
2. Where the angle between the center line of roadway and the center line of bearing is 70° or less place diaphragms at 90 to the stringers. diaphragms shall be spaced as shown in detail this sheet and as noted below.
3. Where aforementioned angle is greater than 70, the diaphragms shall be parallel to the center line of bearing of the stringers.
4. Space intermediate diaphragms at 20'± to 25'± $^{C}/_{C}$; i.e. for spans. (Non-curved bridges only).
   Up to 25' $^{C}/_{C}$ bearings-no intermediate Diaphragm.
   From 25' to 50' $^{C}/_{C}$ bearings-One Intermediate Diaphragm.
   From 50' to 75' $^{C}/_{C}$ bearings-Two Intermediate Diaphragms, etc.
   (See Framing Plan).
5. All diaphragms are to be completely connected to stringers before deck slab is poured.



DIAPHRAGM SPACING

70° OR LESS SKEW

Scale: None



SKEW ANGLE

Scale: None

APPROVAL
E S Freedman DIRECTOR OFFICE OF STRUCTURES
DATE: 6/20/75

REVISIONS	
SHA	FHWA
7-20-93	·
3-3-94	·
1-22-01	·
10-22-03	·

FHWA APPROVAL
DATE: 11-9-76

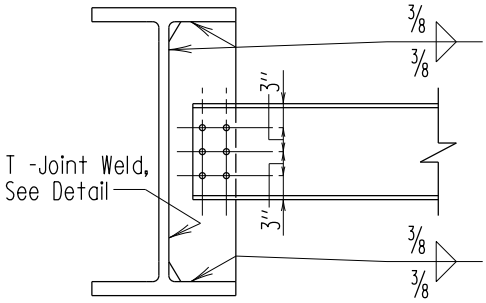
STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

ROLLED STEEL BEAMS INTERMEDIATE DIAPHRAGM DETAILS WELDED CONNECTIONS

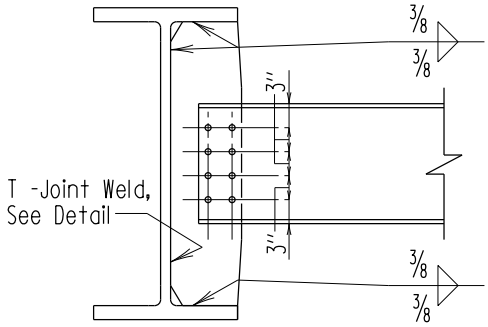
STANDARD NO. BR-SS(8.03)-75-11

SHEET 1 OF 2

SUPERSTRUCTURE - STEEL



24" & SMALLER
STRINGERS

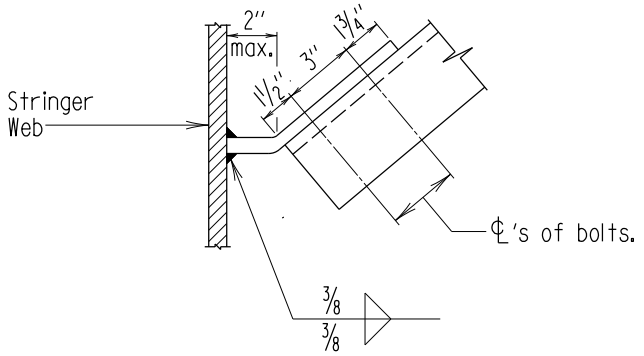


27" & LARGER
STRINGERS

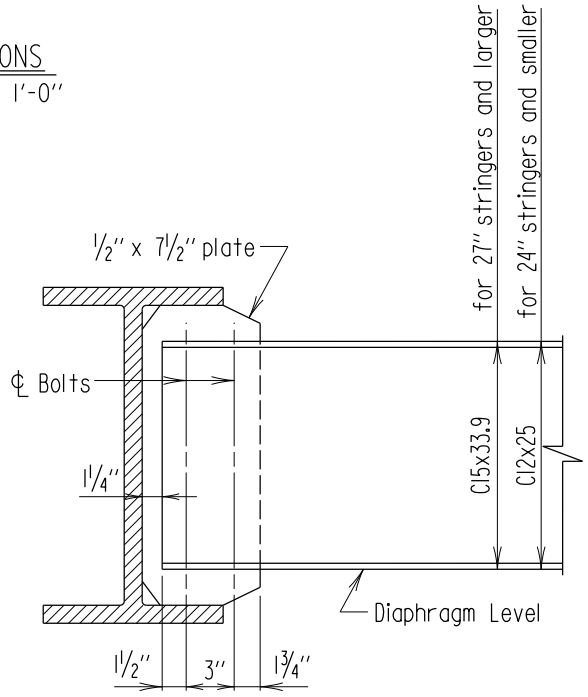
See View "A" Below.

Note:
Angle clip shown;
optional radius clip
acceptable.

ELEVATIONS
Scale: 1/2" = 1'-0"



T-JOINT WELD DETAIL FOR
SKEW ANGLE OVER 70° TO 90°
Scale: None



Note: Dimensions shown are for 90° connections.

VIEW 'A'
Scale: None

Notes:
1. For notes and all details not shown see sheet 1 of 2.
2. Contractor has option to use either welded or bolted connection. However only one type of connection may be used per bridge.
3. All bolts to be 7/8" Φ ASTM A325.
4. All bolts holes to be 15/16" Φ.
5. Bolt spacing applies regardless of skew.

APPROVAL
E.S. Freedman DIRECTOR OFFICE OF STRUCTURES
DATE: 6/20/75

REVISIONS	
SHA	FHWA
10-20-87	12-1-87
7-20-93	·
3-3-94	·
10-22-03	·

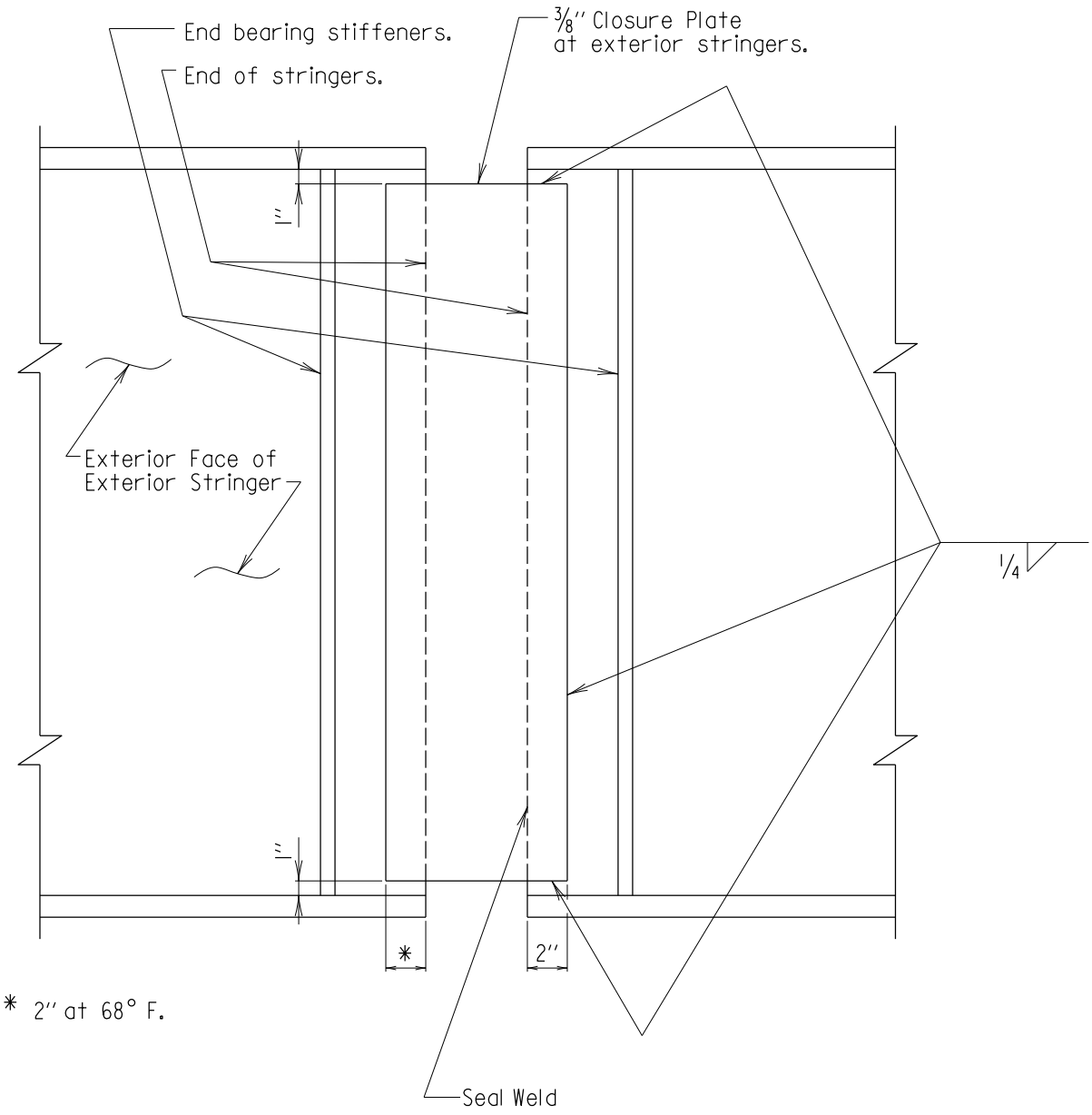
FHWA APPROVAL
DATE: 10-17-78

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

ROLLED STEEL BEAMS
INTERMEDIATE DIAPHRAGM DETAILS
BOLTED CONNECTIONS

STANDARD NO. BR-SS(8.03)-75-11 SHEET 2 OF 2

SUPERSTRUCTURE - STEEL



ELEVATION

Scale: None

Notes:

1. Closure plates to be used on all exterior stringers at supports where stringers are not continuous.
2. If stringers are of different depths, at a support, control dimensions shall apply to shallower stringer.
3. Weld to stringer on fixed shoes, if possible, but only weld to one stringer.
4. Do not provide closure plates on the median side of dual bridges where facias are 50' or less apart.

APPROVAL
E.S. Freedman DIRECTOR OFFICE OF STRUCTURES
DATE: 6/3/76

REVISIONS	
SHA	FHWA
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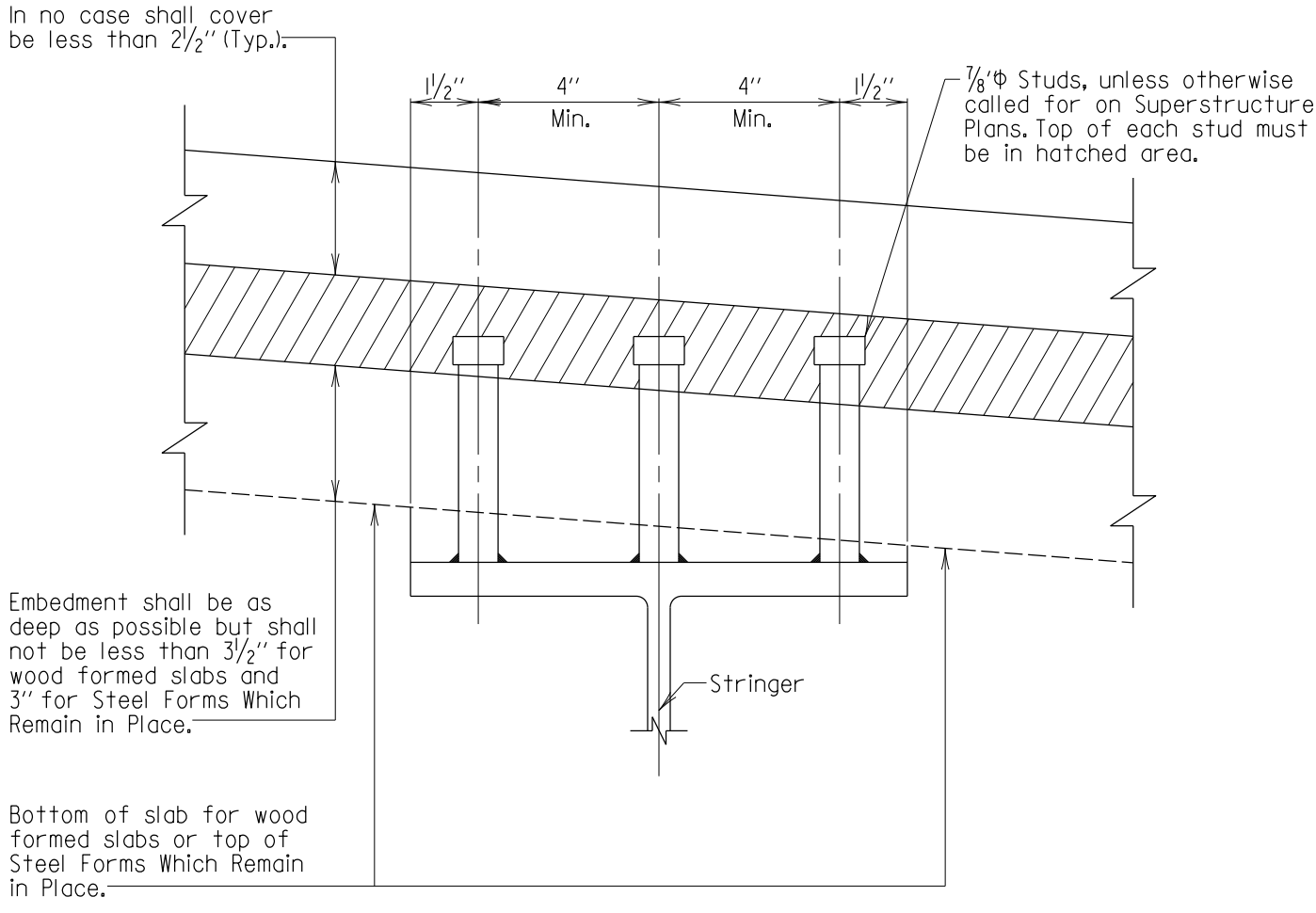
FHWA APPROVAL
DATE: 11-9-76

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

FASCIA STRINGER CLOSURE PLATE DETAIL

STANDARD NO. BR-SS(8.04)-75-20 SHEET 1 OF 1

SUPERSTRUCTURE STEEL



ELEVATION

Scale: None

Notes:

1. For number of studs per row, and longitudinal spacing of rows see pertinent Superstructure sheets.
2. For flange widths less than 11", only two rows of studs are to be used.
3. Steel Forms Which Remain in Place not shown.

APPROVAL	
E.S. Freedman DIRECTOR OFFICE OF STRUCTURES	
DATE: 9/8/76	
REVISIONS	
SHA	FHWA
.	.
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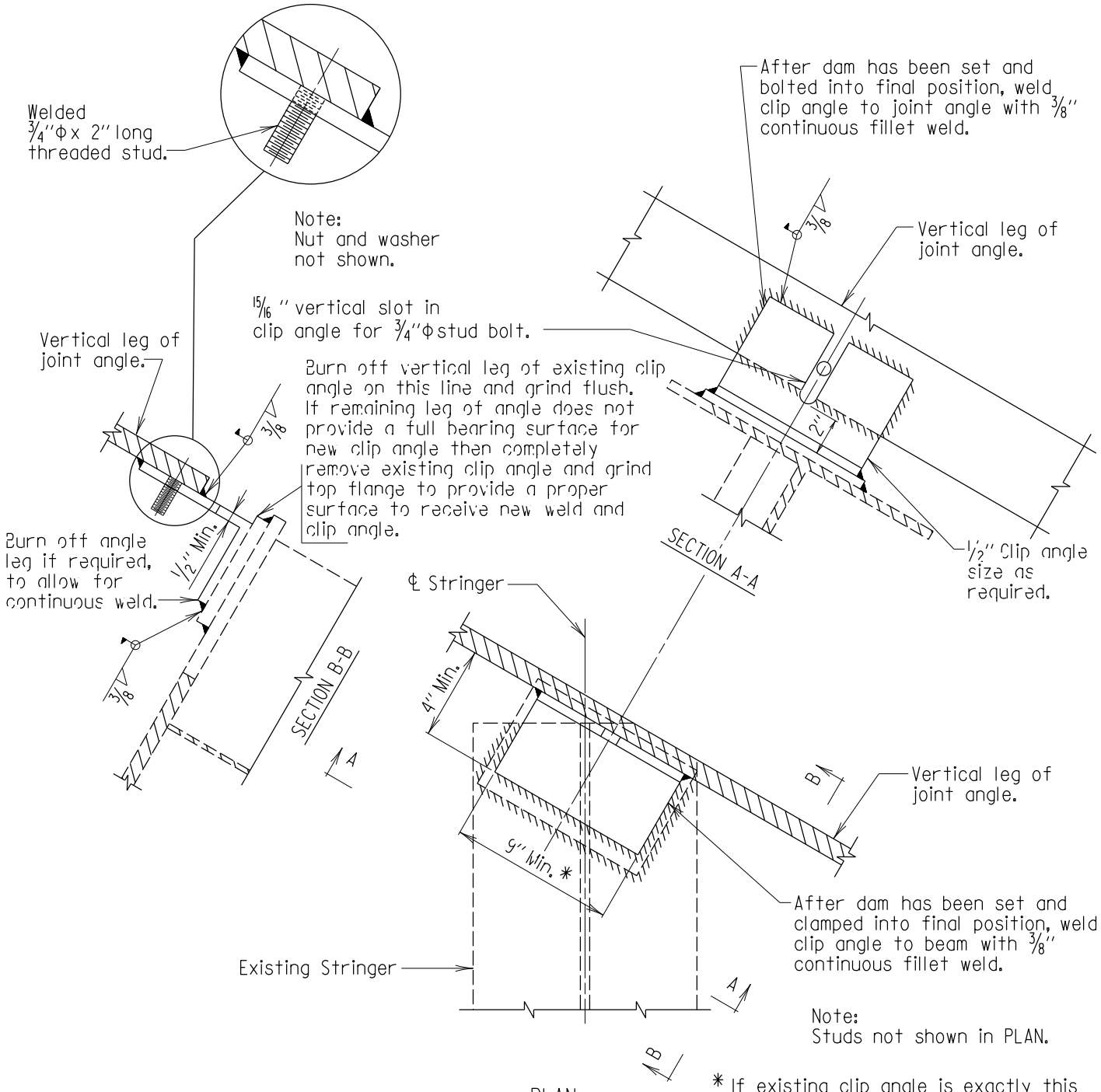
FHWA APPROVAL	
DATE: 11-9-76	

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

STEEL STUD SHEAR DEVELOPER EMBEDMENT DETAIL

STANDARD NO. BR-SS(8.05)-75-30 SHEET 1 OF 1

SUPERSTRUCTURE STEEL



Note:
Existing members shown dashed.

APPROVAL
E.S. Freedman DIRECTOR OFFICE OF STRUCTURES
DATE: 4/12/78

REVISIONS	
SHA	FHWA
2-23-93	·
2-17-94	·
5-24-01	·
7-24-01	·

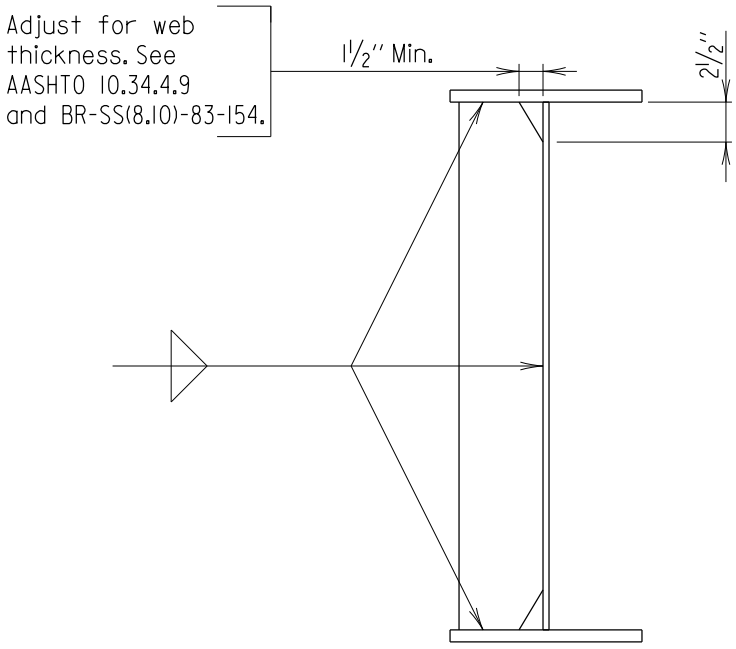
FHWA APPROVAL	
DATE: 10-17-78	

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

ROADWAY JOINT - CLIP ANGLE DETAIL
DECK REPLACEMENT - EXISTING STRINGER

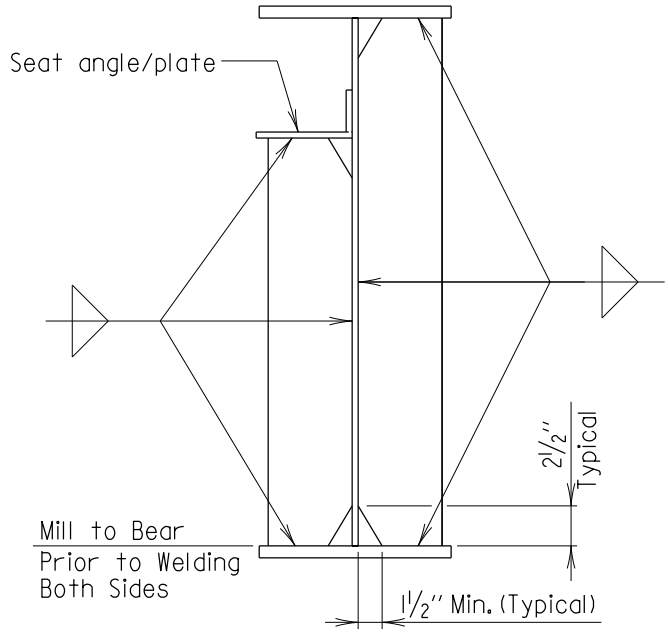
STANDARD NO. BR-SS(8.06)-78-72 SHEET 1 OF 1

SUPERSTRUCTURE-STEEL

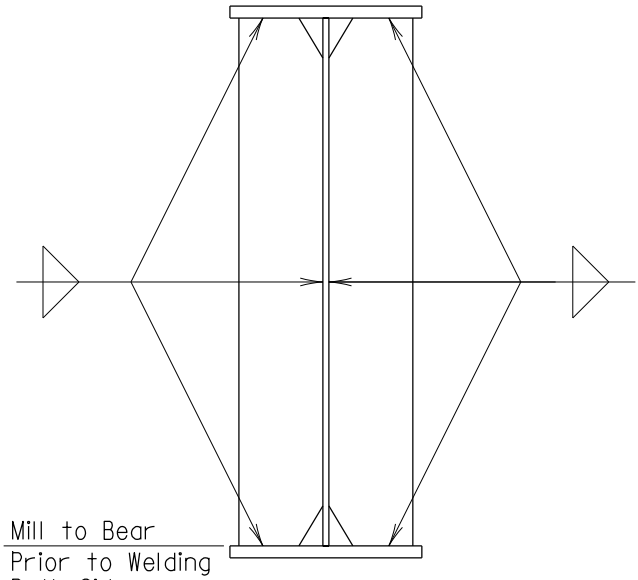


INTERMEDIATE STIFFENERS - ANGLE CLIPS

Scale: 1" = 1'-0"



END BEARING



INTERIOR BEARING CONTINUOUS GIRDER

BEARING STIFFENERS - ANGLE CLIPS

Scale: 1" = 1'-0"

Notes:
1. Minimum stiffener thickness ½".
2. On exterior girders place all intermediate stiffeners on inside of girder.
3. When longitudinal stiffeners are required, place all longitudinal stiffeners on one side of web, place transverse stiffeners on opposite side.
4. Minimum fillet weld is 5/16".

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E.S. Freedman DIRECTOR OFFICE OF STRUCTURES
DATE: 4/12/78

REVISIONS	
SHA	FHWA
7-24-86	·
10-25-88	·
2-14-00	·
10-22-03	·

FHWA APPROVAL
DATE: 10-17-78

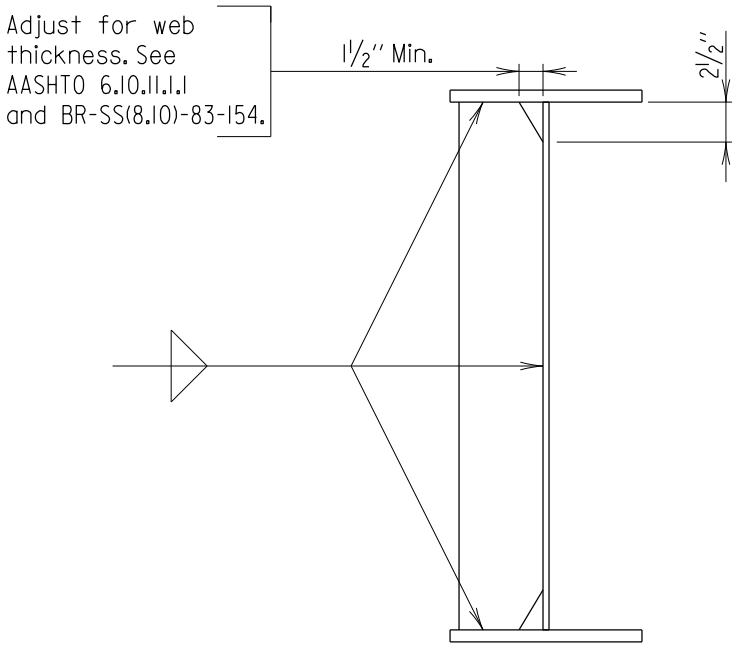
STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

STIFFENER ATTACHMENT DETAILS
FOR STEEL GIRDERS
ANGLE CLIP

STANDARD NO. BR-SS(8.07)-78-73

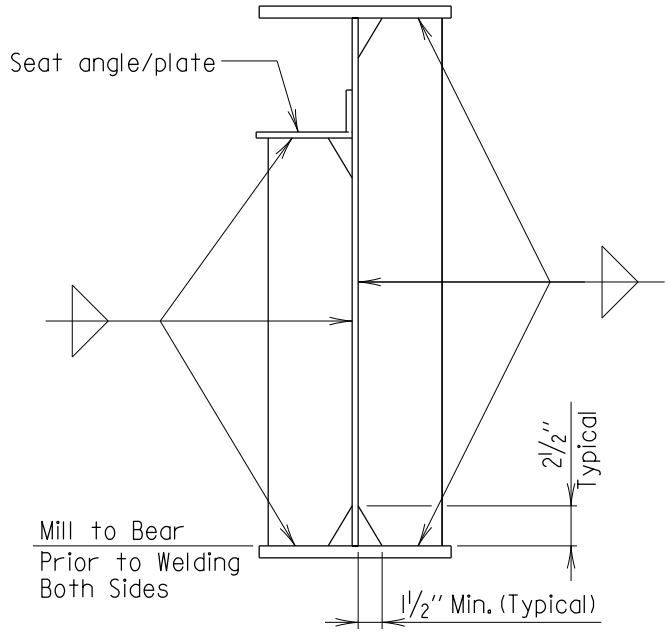
SHEET 1 OF 2

SUPER-STRUCT. STEEL

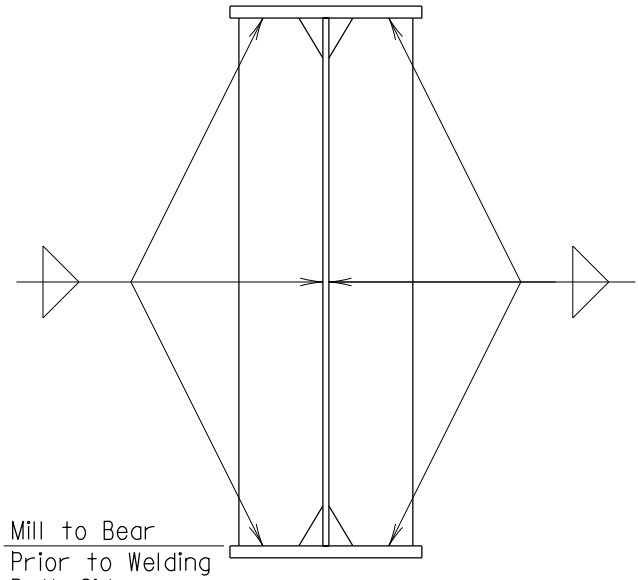


INTERMEDIATE STIFFENERS - ANGLE CLIPS

Scale: 1" = 1'-0"



END BEARING



INTERIOR BEARING
CONTINUOUS GIRDER

BEARING STIFFENERS - ANGLE CLIPS

Scale: 1" = 1'-0"

Notes:
1. Minimum stiffener thickness ½".
2. On exterior girders place all intermediate stiffeners on inside of girder.
3. When longitudinal stiffeners are required, place all longitudinal stiffeners on one side of web, place transverse stiffeners on opposite side.
4. Minimum fillet weld is 5/16".

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APPROVAL
E.S. Freedman DIRECTOR OFFICE OF STRUCTURES
DATE: 4/12/78

REVISIONS	
SHA	FHWA
10-25-88	·
2-14-00	·
10-22-03	·
10-9-07	·

FHWA APPROVAL	
DATE: 10-17-78	

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

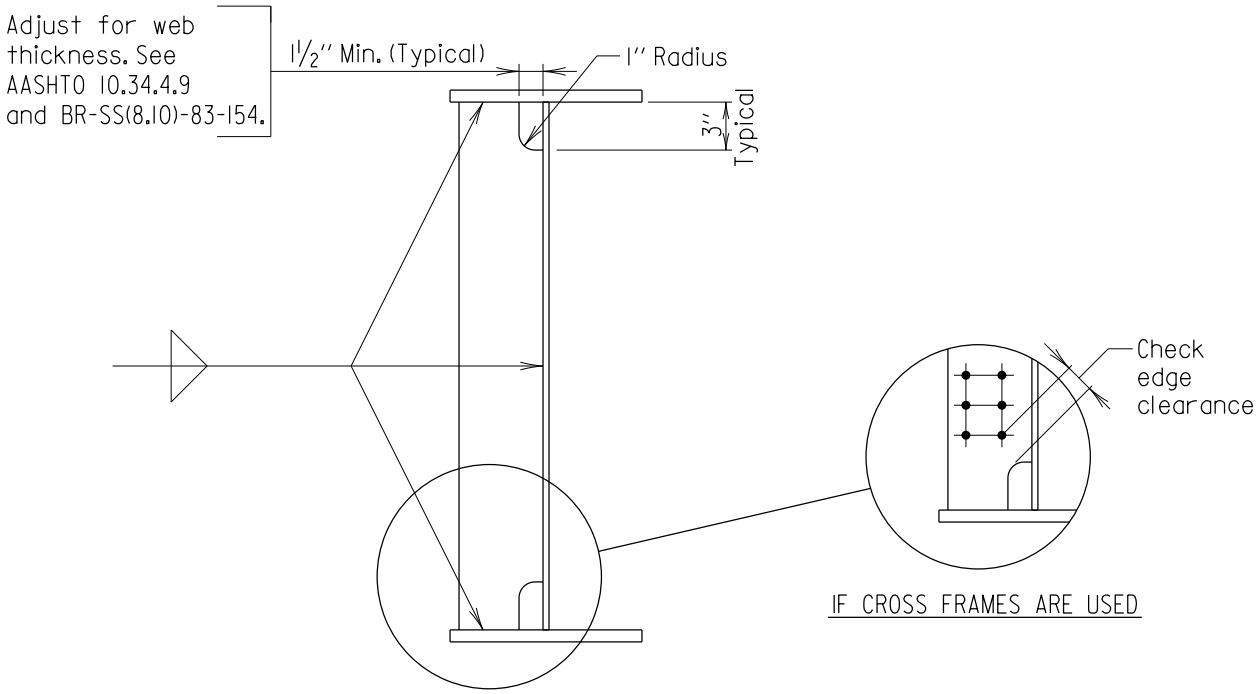
VERIFIED 10-9-2007 LRFD

STIFFENER ATTACHMENT DETAILS FOR STEEL GIRDERS ANGLE CLIP

STANDARD NO. BR-SS(8.07)-78-73(L)

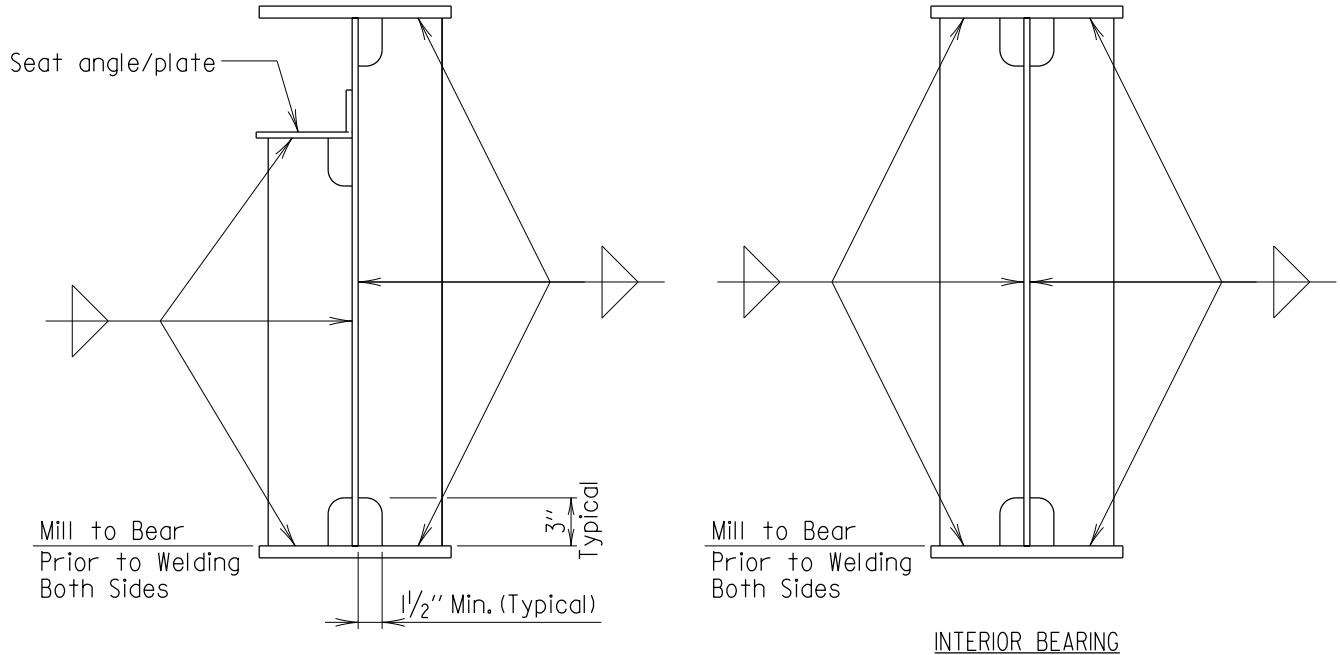
SHEET 1 OF 2

SUPER-STRUCT. STEEL



INTERMEDIATE STIFFENERS - RADIUS CLIPS

Scale: 1" = 1'-0"



BEARING STIFFENERS - RADIUS CLIPS

Scale: 1" = 1'-0"

Notes:
1. Minimum stiffener thickness ½".
2. On exterior girders place all intermediate stiffeners on inside of girder.
3. When longitudinal stiffeners are required, place all longitudinal stiffeners on one side of web, place transverse stiffeners on opposite side.
4. Minimum fillet weld is 5/16".

FOR OFFICE USE ONLY

APPROVAL
E.S. Freedman DIRECTOR OFFICE OF STRUCTURES
DATE: 10/22/03

REVISIONS	
SHA	FHWA
.	.
.	.
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FHWA APPROVAL		
DATE: .	.	.

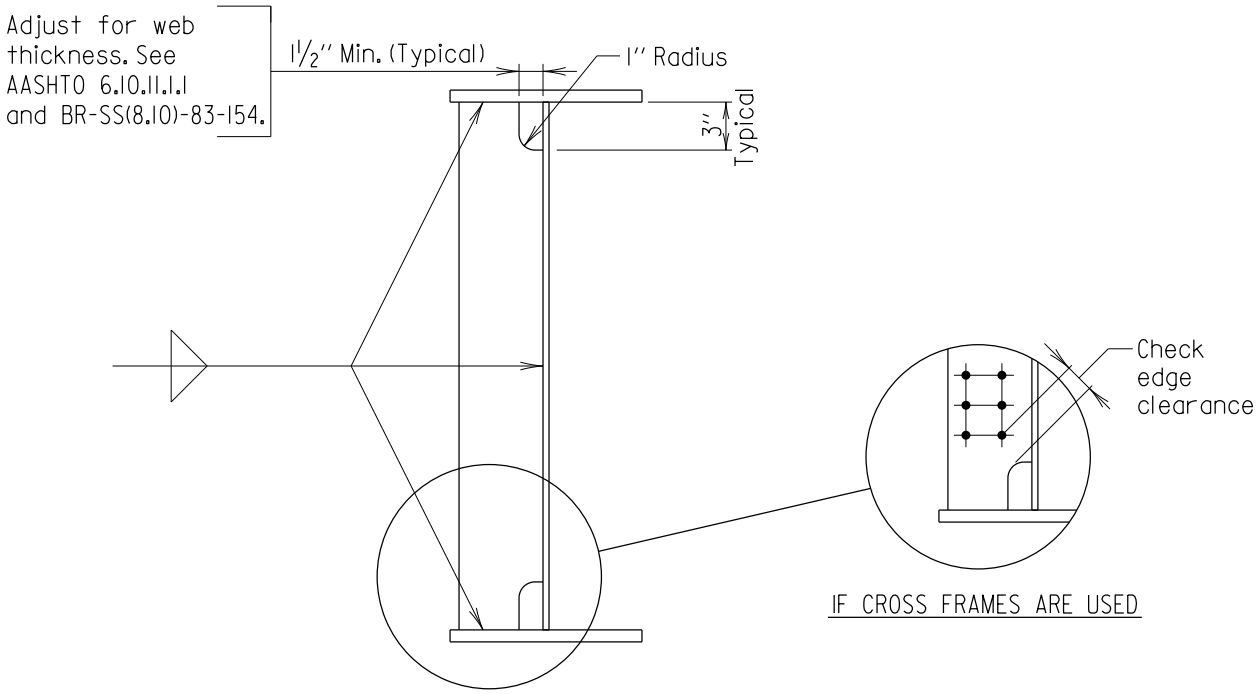
STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

STIFFENER ATTACHMENT DETAILS WITH OPTIONAL RADIUS CLIPS FOR STEEL GIRDERS

STANDARD NO. BR-SS(8.07)-78-73

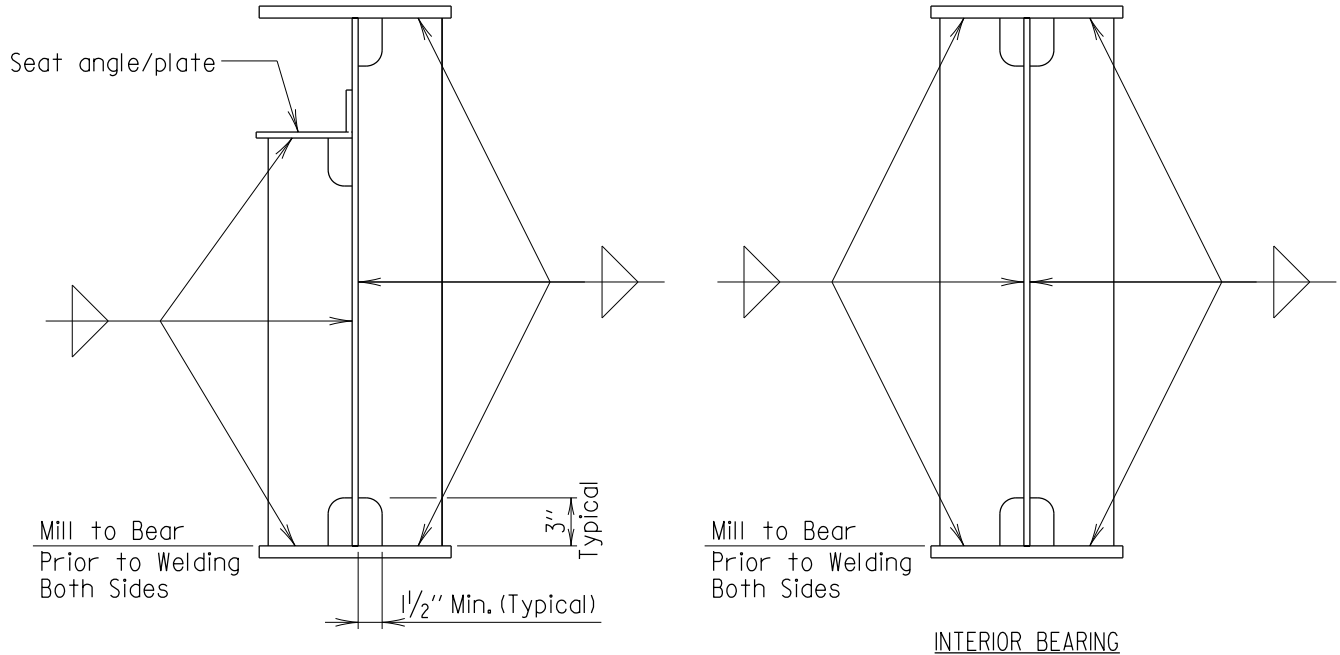
SHEET 2 OF 2

SUPER-STRUCT. STEEL



INTERMEDIATE STIFFENERS - RADIUS CLIPS

Scale: 1" = 1'-0"



BEARING STIFFENERS - RADIUS CLIPS

Scale: 1" = 1'-0"

Notes:
1. Minimum stiffener thickness ½".
2. On exterior girders place all intermediate stiffeners on inside of girder.
3. When longitudinal stiffeners are required, place all longitudinal stiffeners on one side of web, place transverse stiffeners on opposite side.
4. Minimum fillet weld is 5/16".

FOR OFFICE USE ONLY

APPROVAL
E.S. Freedman DIRECTOR OFFICE OF STRUCTURES
DATE: 10/22/03

REVISIONS	
SHA	FHWA
10-9-07	·
·	·
·	·
·	·

FHWA APPROVAL
DATE: .

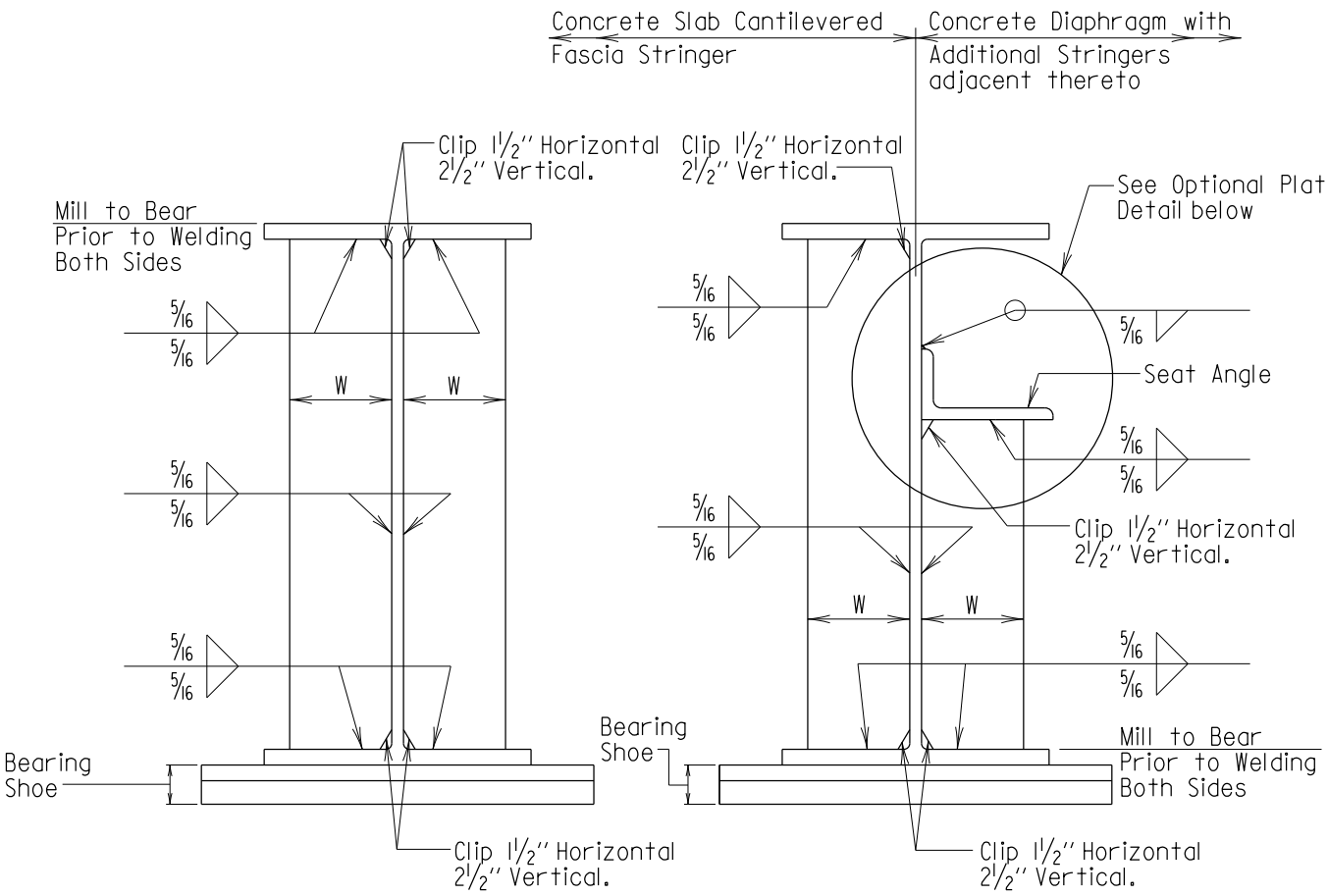
STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

VERIFIED 10-9-2007 LRFD

STIFFENER ATTACHMENT DETAILS WITH OPTIONAL RADIUS CLIPS FOR STEEL GIRDERS

STANDARD NO. BR-SS(8.07)-78-73(L) SHEET 2 OF 2

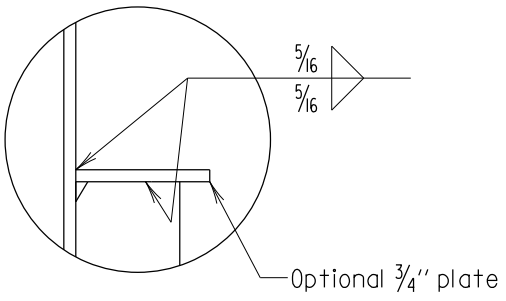
SUPER-STRUCT. STEEL



AT PIERS
(WHERE STRINGER IS
CONTINUOUS OVER SUPPORT)
Scale: ½" = 1'-0"

AT PIERS
(WHERE STRINGER IS NOT
CONTINUOUS OVER SUPPORT) AND
AT ABUTMENTS
Scale: ½" = 1'-0"

Location	W= Stiffener Width	Stiffener Thickness
Abutment	·	·
Pier	·	·
Pier	·	·
Pier	·	·
Abutment	·	·



OPTIONAL SEAT PLATE DETAIL

Slanted lettering indicates notes "For Office Use Only".
Stiffener width to thickness ratio : 10 or less.
Width of stiffener: To nearest ½" about ½" less than distance from face of web to edge of flange.

APPROVAL
E.S. Freedman DIRECTOR OFFICE OF STRUCTURES
DATE: 6/2/80

REVISIONS	
SHA	FHWA
10-27-92	·
1-28-94	·
2-14-00	·
10-22-03	·

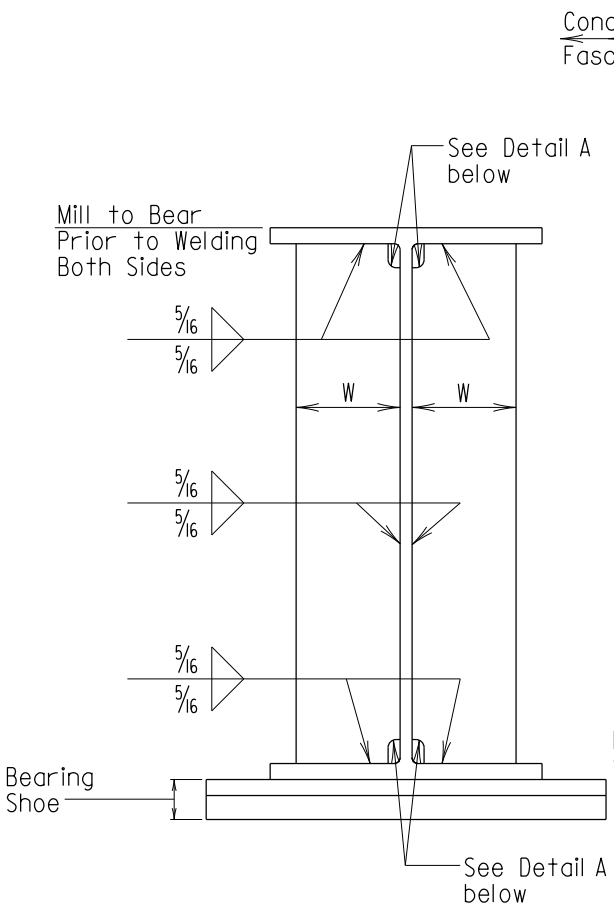
FHWA APPROVAL
DATE: 7-29-80

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

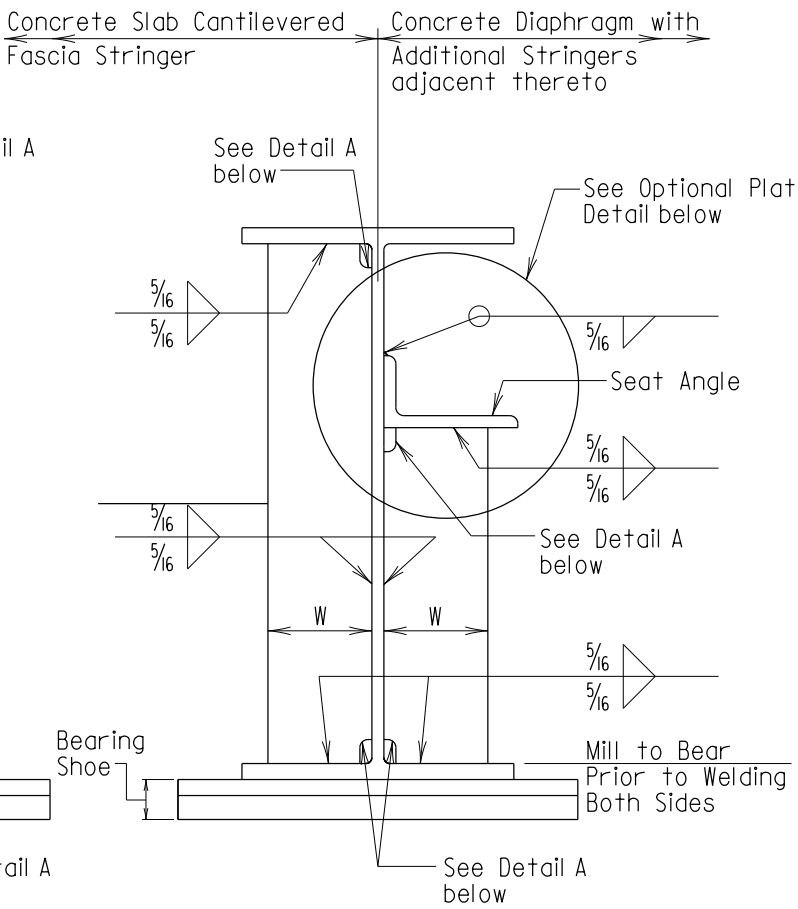
BEARING STIFFENERS FOR ROLLED STEEL BEAMS ANGLE CLIP

STANDARD NO. BR-SS(8.08)-80-103 SHEET 1 OF 2

SUPERSTRUCTURE STEEL

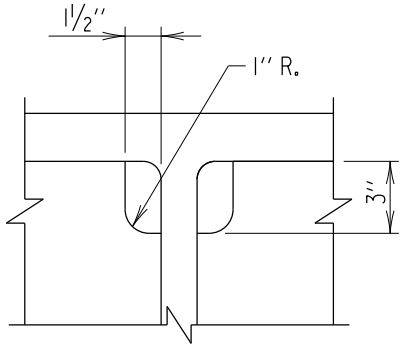


AT PIERS
(WHERE STRINGER IS
CONTINUOUS OVER SUPPORT)
Scale: 1/2" = 1'-0"

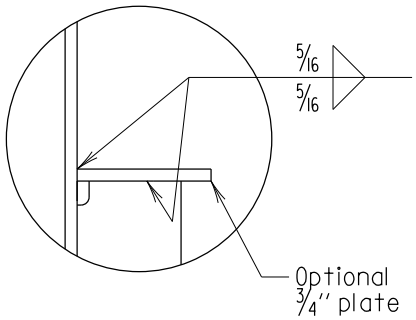


AT PIERS
(WHERE STRINGER IS NOT
CONTINUOUS OVER SUPPORT) AND
AT ABUTMENTS
Scale: 1/2" = 1'-0"

Location	W= Stiffener Width	Stiffener Thickness
Abutment	·	·
Pier	·	·
Pier	·	·
Pier	·	·
Abutment	·	·



DETAIL A
Scale: 1 1/2" = 1'-0"



OPTIONAL SEAT PLATE DETAIL

Slanted lettering indicates notes "For Office Use Only".
Stiffener width to thickness ratio : 10 or less.
Width of stiffener: To nearest 1/2" about 1/2" less than distance from face of web to edge of flange.

APPROVAL
E.S. Freedman DIRECTOR OFFICE OF STRUCTURES
DATE: 10/22/03

REVISIONS	
SHA	FHWA
12-30-03	·
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·	·
·	·

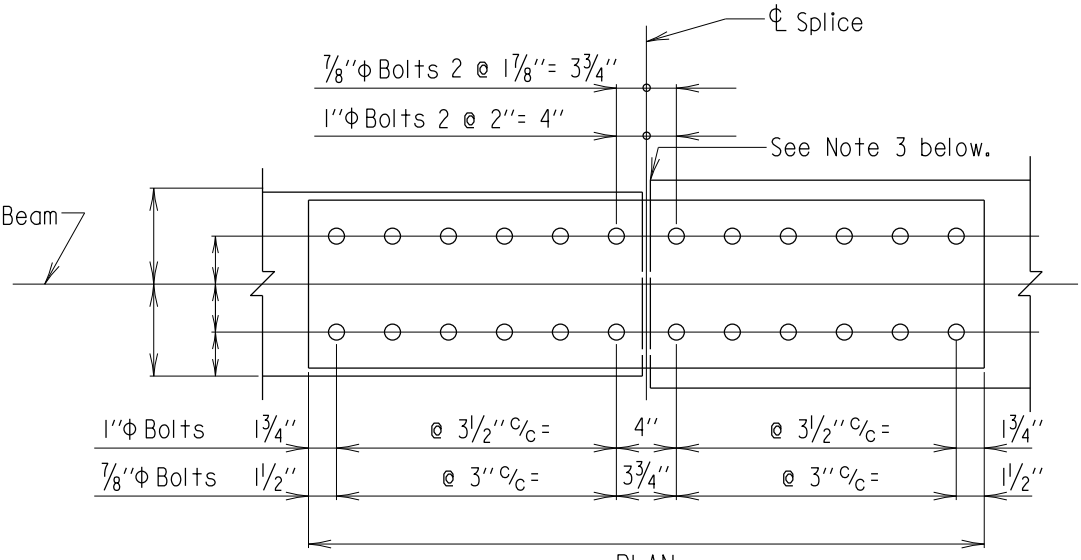
FHWA APPROVAL
DATE: .

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

BEARING STIFFENERS FOR ROLLED STEEL BEAMS OPTIONAL RADIUS CLIP

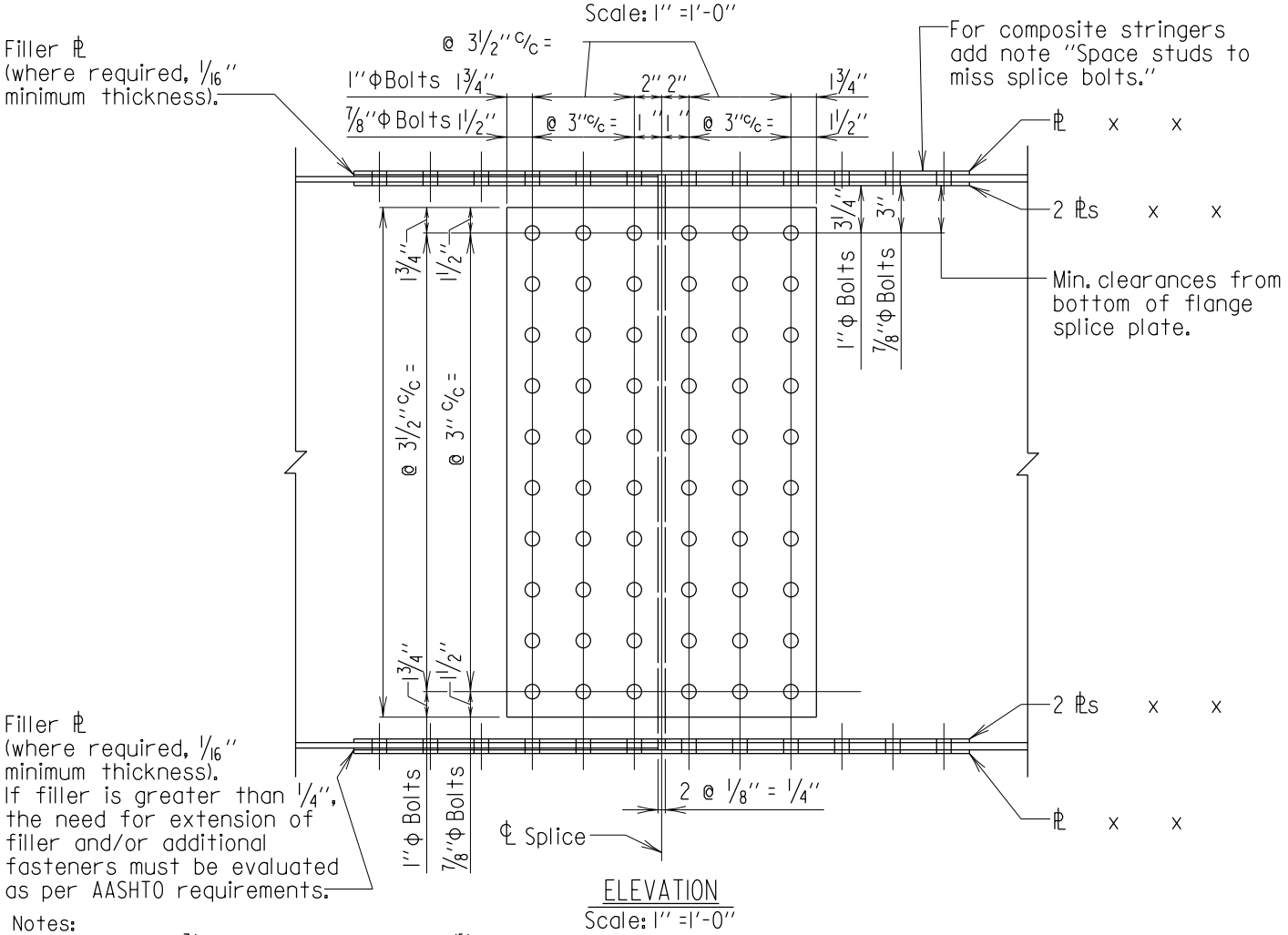
STANDARD NO. BR-SS(8.08)-80-103 SHEET 2 OF 2

SUPERSTRUCTURE STEEL



PLAN

Scale: 1" = 1'-0"



ELEVATION

Scale: 1" = 1'-0"

Notes:

1. All bolts to be 7/8"ΦHigh Strength Bolts (15/16 "Φopen holes), ASTM A 325 unless 1"Φ High Strength Bolts are required by design (1 1/16" open holes). Bolts to be used when weathering structural steel is called for shall be ASTM A 325, Type 3.
2. All splice plates to be a minimum 1/2" thick.
3. If flange widths of adjacent stringers vary more than 2", then larger flange shall be tapered to smaller flange width in a distance of 1/2 length of cover plate. This only applies to bottom flange.
4. Bolts not shown in splice.
5. Bolt heads shall be on the exterior face of the fascia stringer and the bottom of bottom flange.

FOR OFFICE USE ONLY

APPROVAL
E S Freedman DIRECTOR OFFICE OF STRUCTURES
DATE: 6/25/81

REVISIONS	
SHA	FHWA
3-20-89	·
6-8-93	·
12-27-93	·
10-9-07	·

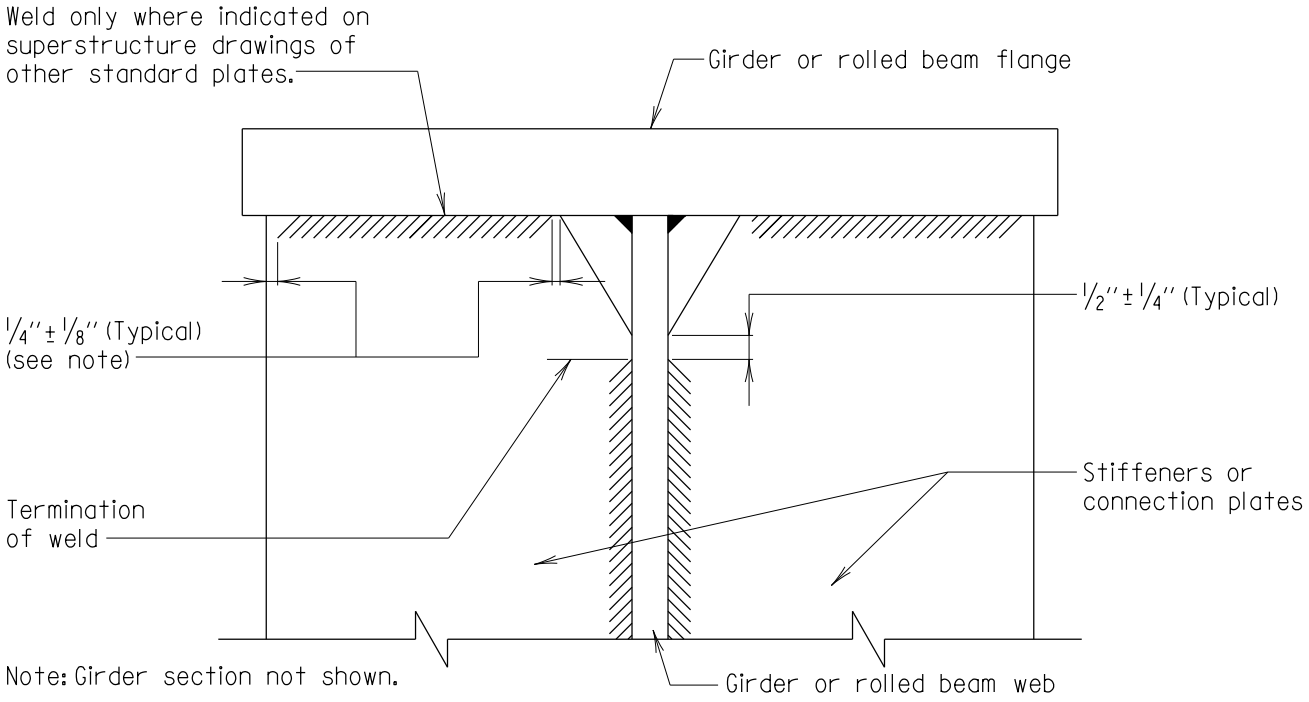
FHWA APPROVAL	
DATE: .	

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

TYPICAL STEEL STRINGER SPLICE DETAIL

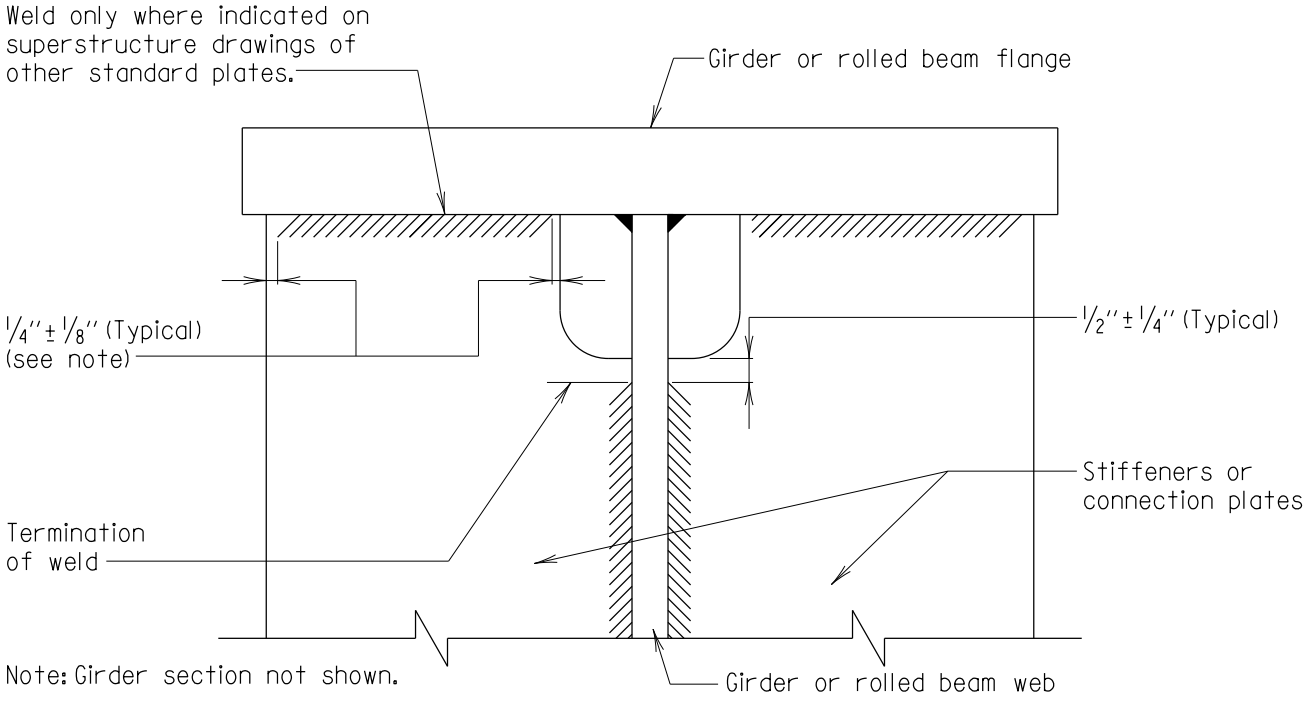
STANDARD NO. BR-SS(8.09)-81-124 SHEET 1 OF 1

SUPER STRUCTURE STEEL



SECTION - ANGLE CLIP

Scale: 3'' = 1'-0''



SECTION - OPTIONAL RADIUS CLIP

Scale: 3'' = 1'-0''

Notes:

1. For all stiffeners (intermediate or bearing) top and bottom, including connection plate for channel diaphragms for all girders and rolled beams.
2. Welding to flange as per this detail will only be required where plans or other standard sheets indicate stiffener is extended and welded to flange.

APPROVAL
E.S. Freedman DIRECTOR OFFICE OF STRUCTURES
DATE: 11/3/83

REVISIONS	
SHA	FHWA
1-22-86	6-8-90
10-1-03	·
·	·
·	·

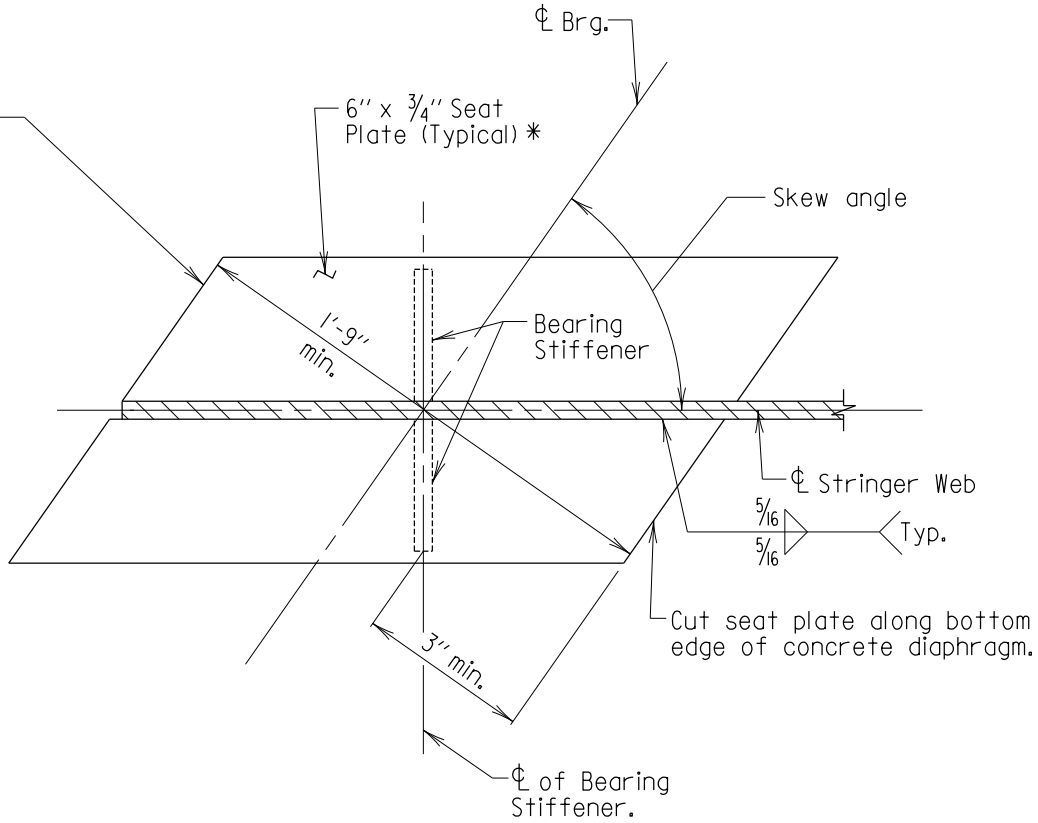
FHWA APPROVAL	·	·
DATE: 12-9-83	·	·

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

STIFFENER AND STRINGER CONNECTION PLATE WELD TERMINATION DETAIL

STANDARD NO. BR-SS(8.10)-83-154 SHEET 1 OF 1

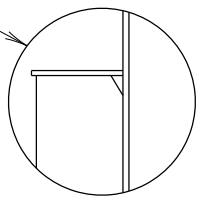
SUPERSTRUCTURE STEEL



PLAN VIEW OF STRINGER BELOW TOP FLANGE

Scale: 1 1/2'' =1'-0''

* Seat plate width shall be increased as necessary so that plate exceeds stiffener width by at least 1/2''.



Notes:

1. Contractor has the option of using seat plates or seat angles, only one type shall be used per bridge.
2. Concrete diaphragm not shown.

APPROVAL
E.S. Freedman DIRECTOR OFFICE OF STRUCTURES
DATE: 2/14/00

REVISIONS	
SHA	FHWA
11-27-12	·
3-7-13	·

FHWA APPROVAL	·	·
DATE: .	·	·

STATE OF MARYLAND
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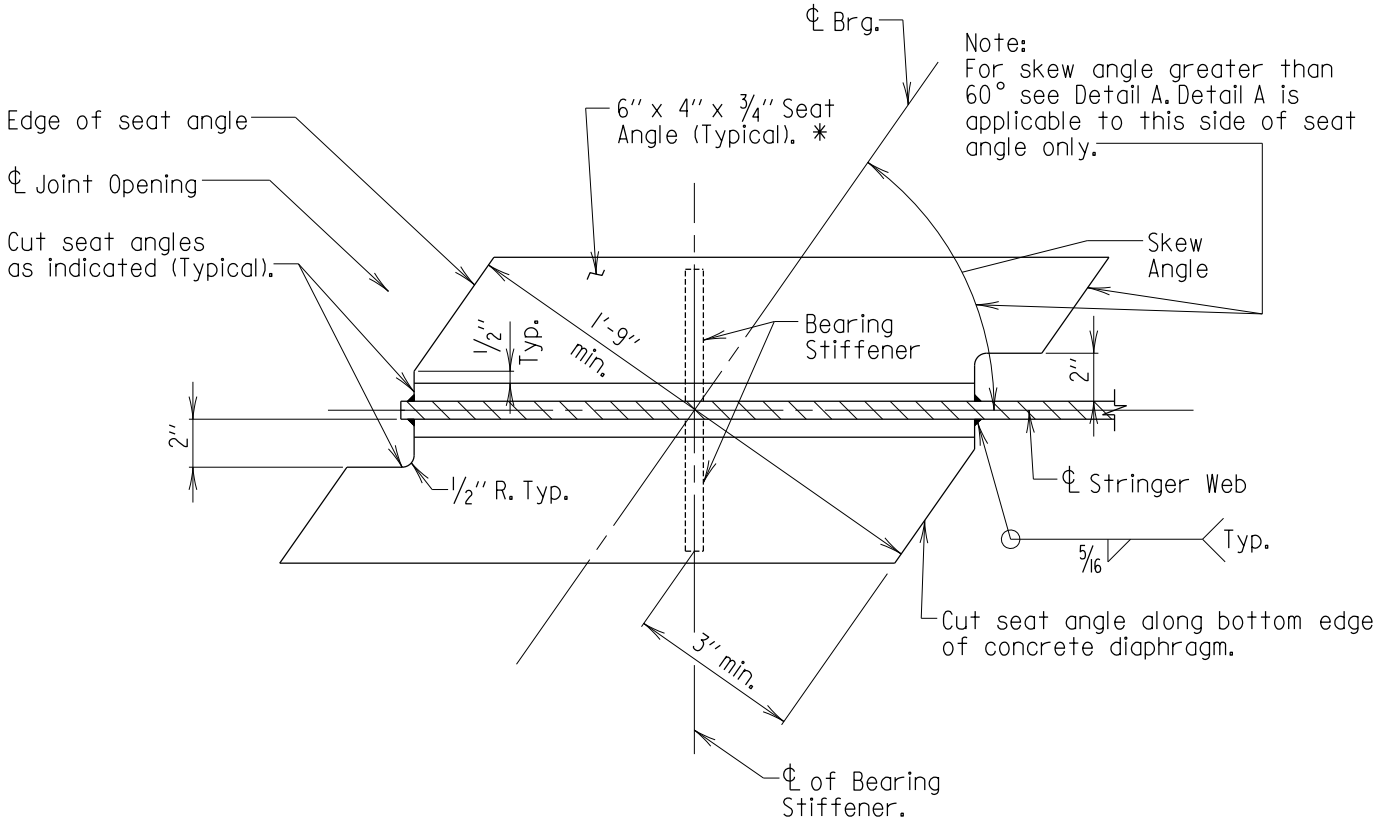
STEEL SEAT PLATES FOR SKEWED CONCRETE DIAPHRAGMS

STANDARD NO. BR-SS(8.12)-85-170 SHEET 1 OF 2

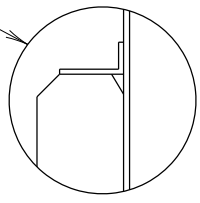
SUPERSTRUCTURE STEEL

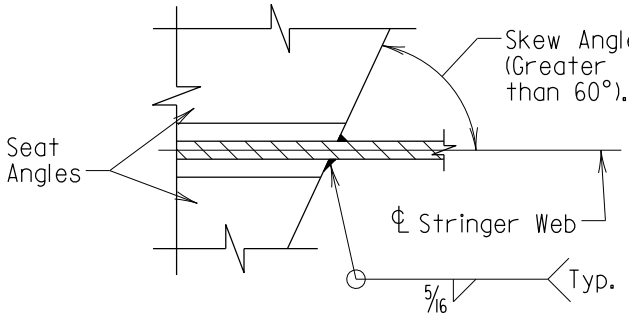


PLAN VIEW OF STRINGER BELOW TOP FLANGE

Scale: 1½" =1'-0"

* Longest leg of angle shall be increased as necessary so that angle exceeds stiffener width by at least ½". If angle size is not available to satisfy this requirement, stiffener shall be tapered at end to meet this requirement.





DETAIL A

Scale: 1½" =1'-0"

Note:
Concrete diaphragm not shown.

APPROVAL
E.S. Freedman DIRECTOR OFFICE OF STRUCTURES
DATE: 11/13/85

REVISIONS	
SHA	FHWA
5-24-89	6-8-90
2-14-00	·
11-27-12	·
3-7-13	·

FHWA APPROVAL
DATE: 6-8-90

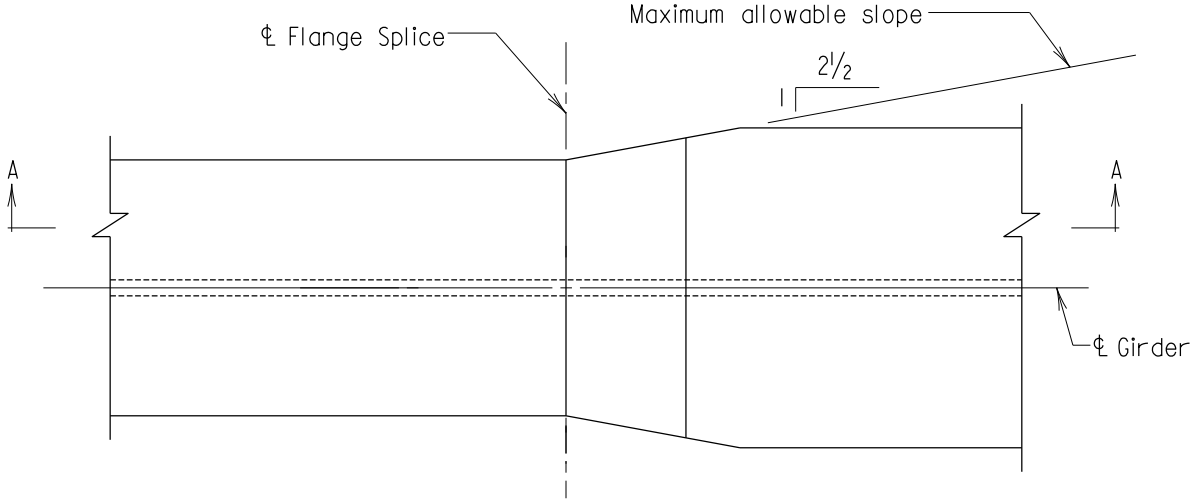
STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

STEEL SEAT ANGLES FOR SKEWED CONCRETE DIAPHRAGMS

STANDARD NO. BR-SS(8.12)-85-170

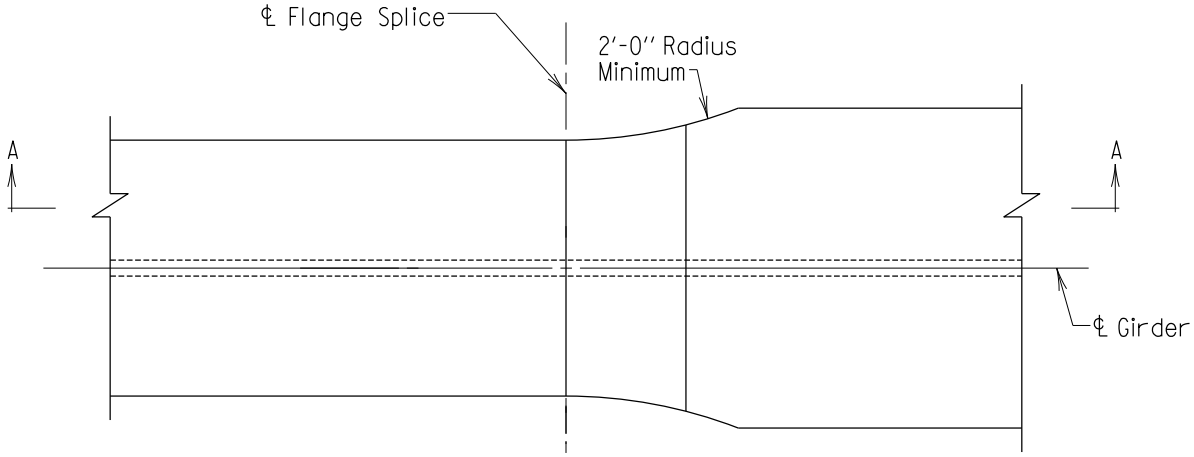
SHEET 2 OF 2

SUPERSTRUCTURE STEEL



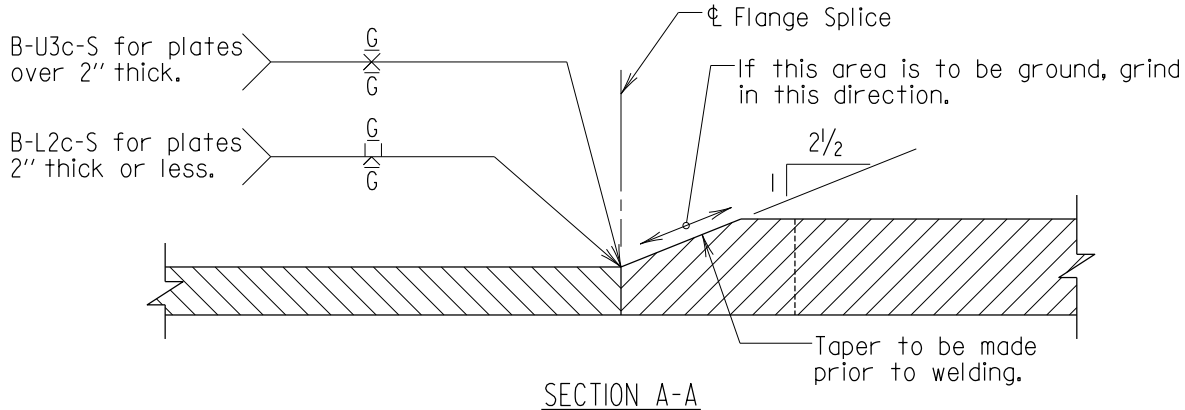
PLAN OF STRAIGHT TAPERED TRANSITION FLANGE SPLICE

Scale: None



PLAN OF RADIAL TRANSITION FLANGE SPLICE

Scale: None



SECTION A-A

Scale: None

Notes:

1. Butt welds of flange splice plates to be ground flush prior to attaching web plates.
2. Splice shown is for different width and different thickness flanges; if only one variation is present use pertinent portion of standard.
3. Fabricator may use either of the above transition details.

APPROVAL
E.S. Freedman DIRECTOR OFFICE OF STRUCTURES
DATE: 4/25/85

REVISIONS	
SHA	FHWA
11-14-85	6-8-90
1-2-86	6-8-90
6-20-89	6-8-90
8-16-92	

FHWA APPROVAL
DATE: 6-8-90

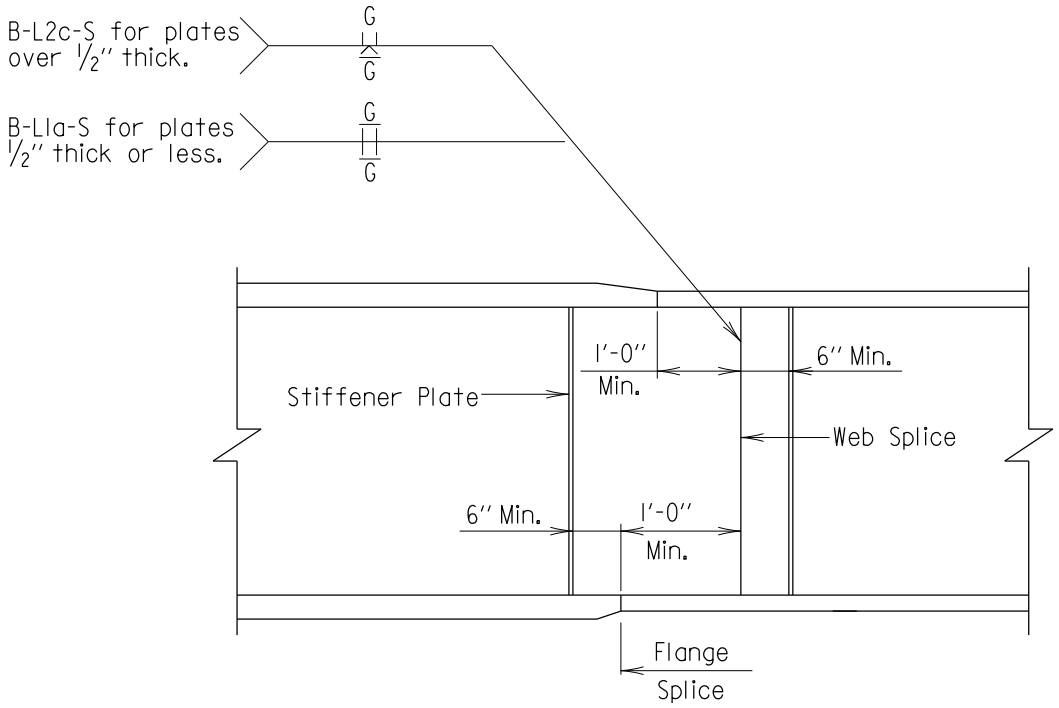
STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

SHOP SPLICE DETAILS FOR PLATE GIRDER STRINGERS

STANDARD NO. BR-SS(8.11)-85-173

SHEET 1 OF 2

SUPERSTRUCTURE STEEL



ELEVATION OF GIRDER

Scale: None

APPROVAL		
R S Freedman DIRECTOR OFFICE OF STRUCTURES DATE: 8/16/92		
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SHA	FHWA	
8-16-92	·	
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STATE OF MARYLAND
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SHOP SPLICE DETAILS FOR PLATE GIRDER STRINGERS

STANDARD NO. BR-SS(8.11)-85-173

SHEET 2 OF 2

SUPERSTRUCTURE STEEL